EZ-Boom™ 2010 Automated Application Control System

Troubleshooting Guide

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Revision B
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Contact Information

Trimble Agriculture Division
10355 Westmoor Dr
Suite #100
Westminster, CO 80021
USA
800-865-7438 (US toll free)
+1-913-495-2700 Phone
+1-913-495-2750 Fax
trimble_support@trimble.com
www.EZ-Boom.com

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Safety Information

In this chapter:

- Configuring vehicles with solenoid boom valves for use with the EZ-Boom 2010 System

Always follow the instructions that accompany a Caution. The information it provides is intended to minimize the risk of personal injury and/or damage to property.

CAUTION – This alert warns of a hazard or unsafe practice which, if not avoided, can cause injury or damage.

Note – *An absence of specific alerts does not mean that there are no safety risks involved.*

Configuring vehicles with solenoid boom valves for use with the EZ-Boom 2010 System

For vehicles equipped with three-wire motorized boom valves, the EZ-Boom 2010 system controller is rated to drive all ten (10) boom sections.

For vehicles with solenoid boom valves, you may need to modify the vehicle, or the vehicle configuration, to ensure that the total current draw does not exceed 16 Amps.

CAUTION – Before using solenoid boom valves, calculate the maximum total current draw. Do not allow the total to exceed 16 Amps. A higher current draw can cause the EZ-Boom controller to overheat and malfunction. To keep below the 16 Amp limit, modify your vehicle setup or configuration.

Calculating the maximum total current draw

1. Find the maximum current draw for one of the solenoid boom valves. If there is no rating in the manufacturer's documentation, contact the vendor.
2. Multiply the maximum current draw for one valve by the total number of solenoid boom valves on the vehicle. For example, if one valve has a maximum current draw of 3 Amps:

This many boom valves ...	Would result in a total maximum current draw of ...
5	5 x 3 Amp = 15 Amp
9	9 x 3 Amp = 27 Amp

Reducing the maximum total current draw

If the total current draw is greater than 16 Amps, do one of the following:

- Use fewer boom valves on the vehicle.
- Add external relays to each of the solenoid valves to reduce the current draw from the EZ-Boom system.
- Replace solenoid valves with three-wire motorized boom valves.

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CHAPTER

1

EZ-Boom 2010 System Error Messages

In this chapter:

- LED errors
- Viewing error messages on the EZ-Guide Plus lightbar guidance system
- Viewing error messages on the AgGPS FieldManager display
- EZ-Boom system error messages

This chapter describes the controller LED states and system error messages from the EZ-Boom™ 2010 automated application control system. It then explains how to correct the errors.

LED errors

The status LED on the EZ-Boom 2010 controller indicates the current operating state.

It does this by displaying different colours and flash patterns:

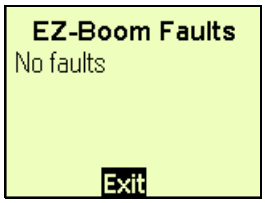
LED state	Description
Off	No power
Steady green	Normal operation
Flashing 1 Hz yellow	CAN bus errors detected (error active/passive state)
Steady yellow	CAN bus off
Steady red	Hardware or initialization failure
Flashing 1 Hz red	Firmware download in process
Flashing fast red	Firmware download error

Viewing error messages on the EZ-Guide Plus lightbar guidance system

To view error messages on the EZ-Boom 2010 system when it is connected to an EZ-Guide® Plus lightbar guidance system:

1. From the lightbar navigation screen, select .
2. Select *EZ-Boom* / *Fault History*.

   The *EZ-Boom Faults* screen appears. The previous four error messages that the EZ-Boom 2010 system has encountered appear on the screen.

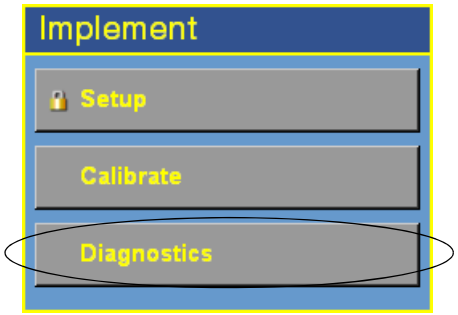


Viewing error messages on the *Ag*GPS FieldManager display

To view error messages on the EZ-Boom 2010 system when it is connected to an *Ag*GPS® FieldManager™ display:

1. From the FieldManager display home screen, press the Configuration button.

   The *Configuration* screen appears.
2. From the *Implement* group, tap the **Diagnostics** button.



   The *EZ-Boom Diagnostics* screen appears.
3. Tap the **View Error Log** button. The *EZ-Boom Error History* screen appears. It displays the EZ-Boom system errors.

Note – *Because this is a list of errors that have occurred, errors on the list are not necessarily still occurring.*

A error message also pops up on the main navigation screen of the display when the error is encountered.

EZ-Boom system error message 4500: “Setup Invalid”

Cause

A critical EZ-Boom system error has occurred. This message appears at start-up and every time the setup process is ended, if the configuration is invalid.

Possible failure modes

- One or more of the setup parameters are invalid.

Note – *If this is only an occasional problem, use the display to clear the controller error and continue to operate.*

Solution

STEP 1: Clear the error message (EZ-Guide Plus lightbar)

a. Write down the error message.

b. Press OK.

Clear the error message (FieldManager display)

a. Write down the error message.

b. On the display, check the error detail.

c. Tap **OK**.

STEP 2: Check all setup parameters (EZ-Guide Plus lightbar)

a. From the main navigation screen, select . The setup menu appears.

b. Select *EZ-Boom*. The EZ-Boom screen appears.

Check through the EZ-Boom system settings, to ensure that they are correct.

Check all setup parameters (FieldManager display)

a. On the display, press the Configuration button.

The *Configuration* screen appears.

b. From the *Implement* group, tap the **Setup** button.

The *Edit Implement* screen appears.

Tap each of the **Settings...** buttons and check that the implement and controller settings are correct.

EZ-Boom system error message 4600: “Rate Not Responding”

Cause

A critical EZ-Boom system error has occurred. The difference between the actual flow and the target flow has been greater than 30% for at least 6 seconds. This message appears when the error first occurs and every second of continuous error after that until it is corrected.

Possible failure modes

- The target rate is outside the operating range of the spray nozzles.
- The target rate is outside the operating range of the solution pump.
- The target rate cannot be maintained because the sprayer speed is too low or too high.
- The flow control valve setup is incorrect.

Note – *If this is only an occasional problem, use the display to clear the controller error and continue to operate.*

Solution

STEP 1: Clear the error message (EZ-Guide Plus lightbar)

a. Write down the error message.

b. Press OK.

Clear the error message (FieldManager display)

a. Write down the error message.

b. On the display, check the error detail.

c. Tap **OK**.

STEP 2: Check the following setup parameters

a. Check that the flow control valve setup is correct.

Tip – If your sprayer has a bypass servo, check that there is no crossover cable connected to the flow control valve. On Raven systems, this cable is required to allow the Raven flow controller to correctly adjust the valve. On an EZ-Boom system, this cable is not required. If a crossover cable is not fitted but the EZ-Boom system cannot properly control a bypass flow control valve, try changing the control valve setup to Inline Servo.

b. Check that the target rate is within the operating parameters of the spray nozzles at your spraying speed.

Tip – Refer to your spray nozzle selection chart for information relating to flow and speed.

If necessary, do one of the following:

- change the spray nozzles
- adjust your target rate and/or speed to match the target rate to the sprayer nozzles

c. Check that the solution pump is able to deliver the correct flow for your specified target rate. If necessary, change the spray nozzles or adjust your target rate and/or speed to bring the required flow to within the capabilities of the solution pump.

Step 3: Check the strainers

Check that the strainers on the sprayer are not blocked.

EZ-Boom system error message 4701: “Boom 1 Over Current”

Cause

A critical EZ-Boom system error has occurred. The boom is turned on and the current feedback is greater than 5.3 A. This message appears when the error first occurs and every 10 seconds of continuous error after that until it is corrected.

Possible failure modes

- There is a faulty boom valve.

Note – *If this is only an occasional problem, use the display to clear the controller error and continue to operate.*

Solution

STEP 1: Clear the error message (EZ-Guide Plus lightbar)

a. Write down the error message.

b. Press OK.

Clear the error message (FieldManager display)

a. Write down the error message.

b. On the display, check the error detail.

c. Tap **OK**.

STEP 2: Check the current to the EZ-Boom controller

a. With a multitester, check the current to pin 6 of the 16-pin connector on the EZ-Boom controller while boom section 1 is turned on.

b. If the current is greater than 5.3 A, check the vehicle wiring and the boom valve.

STEP 3: Check that pin 3 and pin 1 share a grounding point

Check that pin 3 on the CAN connector and pin 1 on the 16-pin main connector are both connected to the same electrical ground point:

a. Attach a multitester to pin 3 on the CAN connector harness and pin 1 on the 16-pin main connector harness.

b. Measure the resistance. The resistance should be < 0.3 ohms.

EZ-Boom system error message 4801: “Boom 2 Over Current”

Cause

A critical EZ-Boom system error has occurred. The boom is turned on and the current feedback is greater than 5.3 A. This message appears when the error first occurs and every 10 seconds of continuous error after that until it is corrected.

Possible failure modes

- There is a faulty boom valve.

Note – *If this is only an occasional problem, use the display to clear the controller error and continue to operate.*

Solution

STEP 1: Clear the error message (EZ-Guide Plus lightbar)

a. Write down the error message.

b. Press OK.

Clear the error message (FieldManager display)

a. Write down the error message.

b. On the display, check the error detail.

c. Tap **OK**.

STEP 2: Check the current to the EZ-Boom controller

a. With a multitester, check the current to pin 2 of the 16-pin connector on the EZ-Boom controller while boom section 2 is turned on.

b. If the current is greater than 5.3 A, check the vehicle wiring and the boom valve.

STEP 3: Check that pin 3 and pin 1 share a grounding point

Check that pin 3 on the CAN connector and pin 1 on the 16-pin main connector are both connected to the same electrical ground point:

a. Attach a multitester to pin 3 on the CAN connector harness and pin 1 on the 16-pin main connector harness.

b. Measure the resistance. The resistance should be < 0.3 ohms.

EZ-Boom system error message 4901: “Boom 3 Over Current”

Cause

A critical EZ-Boom system error has occurred. The boom is turned on and the current feedback is greater than 5.3 A. This message appears when the error first occurs and every 10 seconds of continuous error after that until it is corrected.

Possible failure modes

- There is a faulty boom valve.

Note – *If this is only an occasional problem, use the display to clear the controller error and continue to operate.*

Solution

STEP 1: Clear the error message (EZ-Guide Plus lightbar)

a. Write down the error message.

b. Press OK.

Clear the error message (FieldManager display)

a. Write down the error message.

b. On the display, check the error detail.

c. Tap **OK**.

STEP 2: Check the current to the EZ-Boom controller

a. With a multitester, check the current to pin 5 of the 16-pin connector on the EZ-Boom controller while boom section 3 is turned on.

b. If the current is greater than 5.3 A, check the vehicle wiring and the boom valve.

STEP 3: Check that pin 3 and pin 1 share a grounding point

Check that pin 3 on the CAN connector and pin 1 on the 16-pin main connector are both connected to the same electrical ground point:

a. Attach a multitester to pin 3 on the CAN connector harness and pin 1 on the 16-pin main connector harness.

b. Measure the resistance. The resistance should be < 0.3 ohms.

EZ-Boom system error message 4A01: “Boom 4 Over Current”

Cause

A critical EZ-Boom system error has occurred. The boom is turned on and the current feedback is greater than 5.3 A. This message appears when the error first occurs and every 10 seconds of continuous error after that until it is corrected.

Possible failure modes

- There is a faulty boom valve.

Note – *If this is only an occasional problem, use the display to clear the controller error and continue to operate.*

Solution

STEP 1: Clear the error message (EZ-Guide Plus lightbar)

a. Write down the error message.

b. Press OK.

Clear the error message (FieldManager display)

a. Write down the error message.

b. On the display, check the error detail.

c. Tap **OK**.

STEP 2: Check the current to the EZ-Boom controller

a. With a multitester, check the current to pin 7 of the 16-pin connector on the EZ-Boom controller while boom section 4 is turned on.

b. If the current is greater than 5.3 A, check the vehicle wiring and the boom valve.

STEP 3: Check that pin 3 and pin 1 share a grounding point

Check that pin 3 on the CAN connector and pin 1 on the 16-pin main connector are both connected to the same electrical ground point:

a. Attach a multitester to pin 3 on the CAN connector harness and pin 1 on the 16-pin main connector harness.

b. Measure the resistance. The resistance should be < 0.3 ohms.

EZ-Boom system error message 4B01: “Boom 5 Over Current”

Cause

A critical EZ-Boom system error has occurred. The boom is turned on and the current feedback is greater than 5.3 A. This message appears when the error first occurs and every 10 seconds of continuous error after that until it is corrected.

Possible failure modes

- There is a faulty boom valve.

Note – *If this is only an occasional problem, use the display to clear the controller error and continue to operate.*

Solution

STEP 1: Clear the error message (EZ-Guide Plus lightbar)

a. Write down the error message.

b. Press OK.

Clear the error message (FieldManager display)

a. Write down the error message.

b. On the display, check the error detail.

c. Tap **OK**.

STEP 2: Check the current to the EZ-Boom controller

a. With a multitester, check the current to pin 8 of the 16-pin connector on the EZ-Boom controller while boom section 5 is turned on.

b. If the current is greater than 5.3 A, check the vehicle wiring and the boom valve.

STEP 3: Check that pin 3 and pin 1 share a grounding point

Check that pin 3 on the CAN connector and pin 1 on the 16-pin main connector are both connected to the same electrical ground point:

a. Attach a multitester to pin 3 on the CAN connector harness and pin 1 on the 16-pin main connector harness.

b. Measure the resistance. The resistance should be < 0.3 ohms.

EZ-Boom system error message 4C01: “Boom 6 Over Current”

Cause

A critical EZ-Boom system error has occurred. The boom is turned on and the current feedback is greater than 5.3 A. This message appears when the error first occurs and every 10 seconds of continuous error after that until it is corrected.

Possible failure modes

- There is a faulty boom valve.

Note – *If this is only an occasional problem, use the display to clear the controller error and continue to operate.*

Solution

STEP 1: Clear the error message (EZ-Guide Plus lightbar)

a. Write down the error message.

b. Press OK.

Clear the error message (FieldManager display)

a. Write down the error message.

b. On the display, check the error detail.

c. Tap **OK**.

STEP 2: Check the current to the EZ-Boom controller

a. With a multitester, check the current to pin 9 on the 16-pin connector on the EZ-Boom controller while boom section 6 is turned on.

b. If the current is greater than 5.3 A, check the vehicle wiring and the boom valve.

STEP 3: Check that pin 3 and pin 1 share a grounding point

Check that pin 3 on the CAN connector and pin 1 on the 16-pin main connector are both connected to the same electrical ground point:

a. Attach a multitester to pin 3 on the CAN connector harness and pin 1 on the 16-pin main connector harness.

b. Measure the resistance. The resistance should be < 0.3 ohms.

EZ-Boom system error message 4D01: “Boom 7 Over Current”

Cause

A critical EZ-Boom system error has occurred. The boom is turned on and the current feedback is greater than 5.3 A. This message appears when the error first occurs and every 10 seconds of continuous error after that until it is corrected.

Possible failure modes

- There is a faulty boom valve.

Note – *If this is only an occasional problem, use the display to clear the controller error and continue to operate.*

Solution

STEP 1: Clear the error message (EZ-Guide Plus lightbar)

a. Write down the error message.

b. Press OK.

Clear the error message (FieldManager display)

a. Write down the error message.

b. On the display, check the error detail.

c. Tap **OK**.

STEP 2: Check the current to the EZ-Boom controller

a. With a multitester, check the current to pin 15 of the 16-pin connector on the EZ-Boom controller while boom section 7 is turned on.

b. If the current is greater than 5.3 A, check the vehicle wiring and the boom valve.

STEP 3: Check that pin 3 and pin 1 share a grounding point

Check that pin 3 on the CAN connector and pin 1 on the 16-pin main connector are both connected to the same electrical ground point:

a. Attach a multitester to pin 3 on the CAN connector harness and pin 1 on the 16-pin main connector harness.

b. Measure the resistance. The resistance should be < 0.3 ohms.

EZ-Boom system error message 4E01: “Boom 8 Over Current”

Cause

A critical EZ-Boom system error has occurred. The boom is turned on and the current feedback is greater than 5.3 A. This message appears when the error first occurs and every 10 seconds of continuous error after that until it is corrected.

Possible failure modes

- There is a faulty boom valve.

Note – *If this is only an occasional problem, use the display to clear the controller error and continue to operate.*

Solution

STEP 1: Clear the error message (EZ-Guide Plus lightbar)

a. Write down the error message.

b. Press OK.

Clear the error message (FieldManager display)

a. Write down the error message.

b. On the display, check the error detail.

c. Tap **OK**.

STEP 2: Check the current to the EZ-Boom controller

a. With a multitester, check the current to pin 1 of the 14-pin connector on the EZ-Boom controller while boom section 8 is turned on.

b. If the current is greater than 5.3 A, check the vehicle wiring and the boom valve.

STEP 3: Check that pin 3 and pin 1 share a grounding point

Check that pin 3 on the CAN connector and pin 1 on the 16-pin main connector are both connected to the same electrical ground point:

a. Attach a multitester to pin 3 on the CAN connector harness and pin 1 on the 16-pin main connector harness.

b. Measure the resistance. The resistance should be < 0.3 ohms.

EZ-Boom system error message 4F01: “Boom 9 Over Current”

Cause

A critical EZ-Boom system error has occurred. The boom is turned on and the current feedback is greater than 5.3 A. This message appears when the error first occurs and every 10 seconds of continuous error after that until it is corrected.

Possible failure modes

- There is a faulty boom valve.

Note – *If this is only an occasional problem, use the display to clear the controller error and continue to operate.*

Solution

STEP 1: Clear the error message (EZ-Guide Plus lightbar)

a. Write down the error message.

b. Press OK.

Clear the error message (FieldManager display)

a. Write down the error message.

b. On the display, check the error detail.

c. Tap **OK**.

STEP 2: Check the current to the EZ-Boom controller

a. With a multitester, check the current to pin 2 of the 14-pin connector on the EZ-Boom controller while boom section 9 is turned on.

b. If the current is greater than 5.3 A, check the vehicle wiring and the boom valve.

STEP 3: Check that pin 3 and pin 1 share a grounding point

Check that pin 3 on the CAN connector and pin 1 on the 16-pin main connector are both connected to the same electrical ground point:

a. Attach a multitester to pin 3 on the CAN connector harness and pin 1 on the 16-pin main connector harness.

b. Measure the resistance. The resistance should be < 0.3 ohms.

EZ-Boom system error message 5001: “Boom 10 Over Current”

Cause

A critical EZ-Boom system error has occurred. The boom is turned on and the current feedback is greater than 5.3 A. This message appears when the error first occurs and every 10 seconds of continuous error after that until it is corrected.

Possible failure modes

- There is a faulty boom valve.

Note – *If this is only an occasional problem, use the display to clear the controller error and continue to operate.*

Solution

STEP 1: Clear the error message (EZ-Guide Plus lightbar)

a. Write down the error message.

b. Press OK.

Clear the error message (FieldManager display)

a. Write down the error message.

b. On the display, check the error detail.

c. Tap **OK**.

STEP 2: Check the current to the EZ-Boom controller

a. With a multitester, check the current to pin 3 of the 14-pin connector on the EZ-Boom controller while boom section 10 is turned on.

b. If the current is greater than 5.3 A, check the vehicle wiring and the boom valve.

STEP 3: Check that pin 3 and pin 1 share a grounding point

Check that pin 3 on the CAN connector and pin 1 on the 16-pin main connector are both connected to the same electrical ground point:

a. Attach a multitester to pin 3 on the CAN connector harness and pin 1 on the 16-pin main connector harness.

b. Measure the resistance. The resistance should be < 0.3 ohms.

EZ-Boom system error message 4702: “Boom 1 Driver Failure”

Cause

A critical EZ-Boom system error has occurred. The boom is turned off and the current feedback is greater than approximately 2.0 A. This message appears when the error first occurs and every 10 seconds of continuous error after that until it is corrected.

Possible failure modes

- There is a faulty boom valve or wiring harness.

Note – *If this is only an occasional problem, use the display to clear the controller error and continue to operate.*

Solution

STEP 1: Clear the error message (EZ-Guide Plus lightbar)

a. Write down the error message.

b. Press OK.

Clear the error message (FieldManager display)

a. Write down the error message.

b. On the display, check the error detail.

c. Tap **OK**.

STEP 2: Check the current to the EZ-Boom controller

a. With a multitester, check the current to pin 6 of the 16-pin connector on the EZ-Boom controller while boom section 1 is turned off.

b. If the current is greater than approximately 2.0 A, check the vehicle wiring and the boom valve.

STEP 3: Check that pin 3 and pin 1 share a grounding point

Check that pin 3 on the CAN connector and pin 1 on the 16-pin main connector are both connected to the same electrical ground point:

a. Attach a multitester to pin 3 on the CAN connector harness and pin 1 on the 16-pin main connector harness.

b. Measure the resistance. The resistance should be < 0.3 ohms.

EZ-Boom system error message 4802: “Boom 2 Driver Failure”

Cause

A critical EZ-Boom system error has occurred. The boom is turned off and the current feedback is greater than approximately 2.0 A. This message appears when the error first occurs and every 10 seconds of continuous error after that until it is corrected.

Possible failure modes

- There is a faulty boom valve or wiring harness.

Note – *If this is only an occasional problem, use the display to clear the controller error and continue to operate.*

Solution

STEP 1: Clear the error message (EZ-Guide Plus lightbar)

a. Write down the error message.

b. Press OK.

Clear the error message (FieldManager display)

a. Write down the error message.

b. On the display, check the error detail.

c. Tap **OK**.

STEP 2: Check the current to the EZ-Boom controller

a. With a multitester, check the current to pin 2 of the 16-pin connector on the EZ-Boom controller while boom section 2 is turned off.

b. If the current is greater than approximately 2.0 A, check the vehicle wiring and the boom valve.

STEP 3: Check that pin 3 and pin 1 share a grounding point

Check that pin 3 on the CAN connector and pin 1 on the 16-pin main connector are both connected to the same electrical ground point:

a. Attach a multitester to pin 3 on the CAN connector harness and pin 1 on the 16-pin main connector harness.

b. Measure the resistance. The resistance should be < 0.3 ohms.

EZ-Boom system error message 4902: “Boom 3 Driver Failure”

Cause

A critical EZ-Boom system error has occurred. The boom is turned off and the current feedback is greater than approximately 2.0 A. This message appears when the error first occurs and every 10 seconds of continuous error after that until it is corrected.

Possible failure modes

- There is a faulty boom valve or wiring harness.

Note – *If this is only an occasional problem, use the display to clear the controller error and continue to operate.*

Solution

STEP 1: Clear the error message (EZ-Guide Plus lightbar)

a. Write down the error message.

b. Press OK.

Clear the error message (FieldManager display)

a. Write down the error message.

b. On the display, check the error detail.

c. Tap **OK**.

STEP 2: Check the current to the EZ-Boom controller

a. With a multitester, check the current to pin 5 of the 16-pin connector on the EZ-Boom controller while boom section 3 is turned off.

b. If the current is greater than approximately 2.0 A, check the vehicle wiring and the boom valve.

STEP 3: Check that pin 3 and pin 1 share a grounding point

Check that pin 3 on the CAN connector and pin 1 on the 16-pin main connector are both connected to the same electrical ground point:

a. Attach a multitester to pin 3 on the CAN connector harness and pin 1 on the 16-pin main connector harness.

b. Measure the resistance. The resistance should be < 0.3 ohms.

EZ-Boom system error message 4A02: “Boom 4 Driver Failure”

Cause

A critical EZ-Boom system error has occurred. The boom is turned off and the current feedback is greater than approximately 2.0 A. This message appears when the error first occurs and every 10 seconds of continuous error after that until it is corrected.

Possible failure modes

- There is a faulty boom valve or wiring harness.

Note – *If this is only an occasional problem, use the display to clear the controller error and continue to operate.*

Solution

STEP 1: Clear the error message (EZ-Guide Plus lightbar)

a. Write down the error message.

b. Press OK.

Clear the error message (FieldManager display)

a. Write down the error message.

b. On the display, check the error detail.

c. Tap **OK**.

STEP 2: Check the current to the EZ-Boom controller

a. With a multitester, check the current to pin 7 of the 16-pin connector on the EZ-Boom controller while boom section 4 is turned off.

b. If the current is greater than approximately 2.0 A, check the vehicle wiring and the boom valve.

STEP 3: Check that pin 3 and pin 1 share a grounding point

Check that pin 3 on the CAN connector and pin 1 on the 16-pin main connector are both connected to the same electrical ground point:

a. Attach a multitester to pin 3 on the CAN connector harness and pin 1 on the 16-pin main connector harness.

b. Measure the resistance. The resistance should be < 0.3 ohms.

EZ-Boom system error message 4B02: “Boom 5 Driver Failure”

Cause

A critical EZ-Boom system error has occurred. The boom is turned off and the current feedback is greater than approximately 2.0 A. This message appears when the error first occurs and every 10 seconds of continuous error after that until it is corrected.

Possible failure modes

- There is a faulty boom valve or wiring harness.

Note – *If this is only an occasional problem, use the display to clear the controller error and continue to operate.*

Solution

STEP 1: Clear the error message (EZ-Guide Plus lightbar)

a. Write down the error message.

b. Press OK.

Clear the error message (FieldManager display)

a. Write down the error message.

b. On the display, check the error detail.

c. Tap **OK**.

STEP 2: Check the current to the EZ-Boom controller

a. With a multitester, check the current to pin 8 of the 16-pin connector on the EZ-Boom controller while boom section 5 is turned off.

b. If the current is greater than approximately 2.0 A, check the vehicle wiring and the boom valve.

STEP 3: Check that pin 3 and pin 1 share a grounding point

Check that pin 3 on the CAN connector and pin 1 on the 16-pin main connector are both connected to the same electrical ground point:

a. Attach a multitester to pin 3 on the CAN connector harness and pin 1 on the 16-pin main connector harness.

b. Measure the resistance. The resistance should be < 0.3 ohms.

EZ-Boom system error message 4C02: “Boom 6 Driver Failure”

Cause

A critical EZ-Boom system error has occurred. The boom is turned off and the current feedback is greater than approximately 2.0 A. This message appears when the error first occurs and every 10 seconds of continuous error after that until it is corrected.

Possible failure modes

- There is a faulty boom valve or wiring harness.

Note – *If this is only an occasional problem, use the display to clear the controller error and continue to operate.*

Solution

STEP 1: Clear the error message (EZ-Guide Plus lightbar)

a. Write down the error message.

b. Press OK.

Clear the error message (FieldManager display)

a. Write down the error message.

b. On the display, check the error detail.

c. Tap **OK**.

STEP 2: Check the current to the EZ-Boom controller

a. With a multitester, check the current to pin 9 of the 16-pin connector on the EZ-Boom controller while boom section 6 is turned off.

b. If the current is greater than approximately 2.0 A, check the vehicle wiring and the boom valve.

STEP 3: Check that pin 3 and pin 1 share a grounding point

Check that pin 3 on the CAN connector and pin 1 on the 16-pin main connector are both connected to the same electrical ground point:

a. Attach a multitester to pin 3 on the CAN connector harness and pin 1 on the 16-pin main connector harness.

b. Measure the resistance. The resistance should be < 0.3 ohms.

EZ-Boom system error message 4D02: “Boom 7 Driver Failure”

Cause

A critical EZ-Boom system error has occurred. The boom is turned off and the current feedback is greater than approximately 2.0 A. This message appears when the error first occurs and every 10 seconds of continuous error after that until it is corrected.

Possible failure modes

- There is a faulty boom valve or wiring harness.

Note – *If this is only an occasional problem, use the display to clear the controller error and continue to operate.*

Solution

STEP 1: Clear the error message (EZ-Guide Plus lightbar)

a. Write down the error message.

b. Press OK.

Clear the error message (FieldManager display)

a. Write down the error message.

b. On the display, check the error detail.

c. Tap **OK**.

STEP 2: Check the current to the EZ-Boom controller

a. With a multitester, check the current to pin 15 of the 16-pin connector on the EZ-Boom controller while boom section 7 is turned off.

b. If the current is greater than approximately 2.0 A, check the vehicle wiring and the boom valve.

STEP 3: Check that pin 3 and pin 1 share a grounding point

Check that pin 3 on the CAN connector and pin 1 on the 16-pin main connector are both connected to the same electrical ground point:

a. Attach a multitester to pin 3 on the CAN connector harness and pin 1 on the 16-pin main connector harness.

b. Measure the resistance. The resistance should be < 0.3 ohms.

EZ-Boom system error message 4E02: “Boom 8 Driver Failure”

Cause

A critical EZ-Boom system error has occurred. The boom is turned off and the current feedback is greater than approximately 2.0 A. This message appears when the error first occurs and every 10 seconds of continuous error after that until it is corrected.

Possible failure modes

- There is a faulty boom valve or wiring harness.

Note – *If this is only an occasional problem, use the display to clear the controller error and continue to operate.*

Solution

STEP 1: Clear the error message (EZ-Guide Plus lightbar)

a. Write down the error message.

b. Press OK.

Clear the error message (FieldManager display)

a. Write down the error message.

b. On the display, check the error detail.

c. Tap **OK**.

STEP 2: Check the current to the EZ-Boom controller

a. With a multitester, check the current to pin 1 of the 14-pin connector on the EZ-Boom controller while boom section 8 is turned off.

b. If the current is greater than approximately 2.0 A, check the vehicle wiring and the boom valve.

STEP 3: Check that pin 3 and pin 1 share a grounding point

Check that pin 3 on the CAN connector and pin 1 on the 16-pin main connector are both connected to the same electrical ground point:

a. Attach a multitester to pin 3 on the CAN connector harness and pin 1 on the 16-pin main connector harness.

b. Measure the resistance. The resistance should be < 0.3 ohms.

EZ-Boom system error message 4F02: “Boom 9 Driver Failure”

Cause

A critical EZ-Boom system error has occurred. The boom is turned off and the current feedback is greater than approximately 2.0 A. This message appears when the error first occurs and every 10 seconds of continuous error after that until it is corrected.

Possible failure modes

- There is a faulty boom valve or wiring harness.

Note – *If this is only an occasional problem, use the display to clear the controller error and continue to operate.*

Solution

STEP 1: Clear the error message (EZ-Guide Plus lightbar)

a. Write down the error message.

b. Press OK.

Clear the error message (FieldManager display)

a. Write down the error message.

b. On the display, check the error detail.

c. Tap **OK**.

STEP 2: Check the current to the EZ-Boom controller

a. With a multitester, check the current to pin 2 of the 14-pin connector on the EZ-Boom controller while boom section 9 is turned off.

b. If the current is greater than approximately 2.0 A, check the vehicle wiring and the boom valve.

STEP 3: Check that pin 3 and pin 1 share a grounding point

Check that pin 3 on the CAN connector and pin 1 on the 16-pin main connector are both connected to the same electrical ground point:

a. Attach a multitester to pin 3 on the CAN connector harness and pin 1 on the 16-pin main connector harness.

b. Measure the resistance. The resistance should be < 0.3 ohms.

EZ-Boom system error message 5002: “Boom 10 Driver Failure”

Cause

A critical EZ-Boom system error has occurred. The boom is turned off and the current feedback is greater than approximately 2.0 A. This message appears when the error first occurs and every 10 seconds of continuous error after that until it is corrected.

Possible failure modes

- There is a faulty boom valve or wiring harness.

Note – *If this is only an occasional problem, use the display to clear the controller error and continue to operate.*

Solution

STEP 1: Clear the error message (EZ-Guide Plus lightbar)

a. Write down the error message.

b. Press OK.

Clear the error message (FieldManager display)

a. Write down the error message.

b. On the display, check the error detail.

c. Tap **OK**.

STEP 2: Check the current to the EZ-Boom controller

a. With a multitester, check the current to pin 3 of the 14-pin connector on the EZ-Boom controller while boom section 10 is turned off.

b. If the current is greater than approximately 2.0 A, check the vehicle wiring and the boom valve.

STEP 3: Check that pin 3 and pin 1 share a grounding point

Check that pin 3 on the CAN connector and pin 1 on the 16-pin main connector are both connected to the same electrical ground point:

a. Attach a multitester to pin 3 on the CAN connector harness and pin 1 on the 16-pin main connector harness.

b. Measure the resistance. The resistance should be < 0.3 ohms.

EZ-Boom system error message 5101: “Flow Valve Over Current”

Cause

A critical EZ-Boom system error has occurred. When the valve is being adjusted, the current feedback is greater than approximately 4.0 A. This message appears when the error first occurs and every 10 seconds of continuous error after that until it is corrected.

Possible failure modes

- There is a faulty control valve or wiring harness.

Note – *If this is only an occasional problem, use the display to clear the controller error and continue to operate.*

Solution

STEP 1: Clear the error message (EZ-Guide Plus lightbar)

a. Write down the error message.

b. Press OK.

Clear the error message (FieldManager display)

a. Write down the error message.

b. On the display, check the error detail.

c. Tap **OK**.

STEP 2: Check the flow control valve setup parameters (EZ-Guide Plus lightbar)

a. From the main navigation screen, select . The setup menu appears.

b. Select *EZ-Boom/Control Valve*. The *Ctrl. Valve Setup* screen appears.

c. Check through the flow control valve settings, to ensure that they are correct.

Check the flow control valve setup parameters (FieldManager display)

a. On the display, press the Configuration button. The *Configuration* screen appears.

b. From the *Implement* group, tap the **Calibrate** button. The *Implement Calibration* screen appears.

c. Select Valve Calibration. The *EZ-Boom Valve Calibration* screen appears.

d. Check that the valve settings are correct.

STEP 3: Check the current to the EZ-Boom controller

a. With a multitester, check the current to pins 3 and 4 of the 16-pin connector on the EZ-Boom controller while the valve is being adjusted.

b. If the current is greater than approximately 4.0 A, check the vehicle wiring and the control valve.

EZ-Boom system error message 5102: “Flow Valve Driver Failure”

Cause

A critical EZ-Boom system error has occurred. The valve is not being adjusted and the current feedback is greater than approximately 2.0 A. This message appears when the error first occurs and every 10 seconds of continuous error after that until it is corrected.

Possible failure modes

- There is a faulty flow control valve or wiring harness.

Note – *If this is only an occasional problem, use the display to clear the controller error and continue to operate.*

Solution

STEP 1: Clear the error message (EZ-Guide Plus lightbar)

a. Write down the error message.

b. Press OK.

Clear the error message (FieldManager display)

a. Write down the error message.

b. On the display, check the error detail.

c. Tap **OK**.

STEP 2: Check the flow control valve setup parameters (EZ-Guide Plus lightbar)

a. From the main navigation screen, select . The setup menu appears.

b. Select *EZ-Boom/Control Valve*. The *Ctrl. Valve Setup* screen appears.

c. Check through the flow control valve settings, to ensure that they are correct.

Check the flow control valve setup parameters (FieldManager display)

a. On the display, press the Configuration button. The *Configuration* screen appears.

b. From the *Implement* group, tap the **Calibrate** button. The *Implement Calibration* screen appears.

c. Select Valve Calibration. The *EZ-Boom Valve Calibration* screen appears.

d. Check that the valve settings are correct.

STEP 3: Check the current to the EZ-Boom controller

a. With a multitester, check the current to pins 3 and 4 of the 16-pin connector on the EZ-Boom controller while the valve is ***not*** being adjusted.

b. If the current is greater than approximately 2.0 A, check the vehicle wiring and the flow control valve.

EZ-Boom system error message 5103: “Flow Valve Open”

Cause

A critical EZ-Boom system error has occurred. There are two possible causes of this error code:

- The driver part has a digital status feedback. The error is triggered when the status indicates an error opening or closing.
- A count is kept for the digital status feedback of the driver part. When normal operation occurs, the count decreases by 1. When an error occurs, the count increases by 1. If the error count reaches 50, the device enters an error state and the valve is no longer adjusted.

This message appears when the error first occurs and every 10 seconds of continuous error after that until it is corrected.

Possible failure modes

- There is a faulty flow control valve or wiring harness.

Note – *If this is only an occasional problem, use the display to clear the controller error and continue to operate.*

Solution

STEP 1: Clear the error message (EZ-Guide Plus lightbar)

a. Write down the error message.

b. Press OK.

Clear the error message (FieldManager display)

a. Write down the error message.

b. On the display, check the error detail.

c. Tap **OK**.

STEP 2: Check the flow control valve setup parameters (EZ-Guide Plus lightbar)

a. From the main navigation screen, select . The setup menu appears.

b. Select *EZ-Boom/Control Valve*. The *Ctrl. Valve Setup* screen appears.

c. Check through the flow control valve settings, to ensure that they are correct.

Check the flow control valve setup parameters (FieldManager display)

a. On the display, press the Configuration button. The *Configuration* screen appears.

b. From the *Implement* group, tap the **Calibrate** button. The *Implement Calibration* screen appears.

c. Select Valve Calibration. The *EZ-Boom Valve Calibration* screen appears.

d. Check that the valve settings are correct.

STEP 3: Turn the controller off and on again

If the error count has reached 50 and the device has entered a error state:

a. Turn the controller off.

b. Wait for 5 seconds.

c. Turn the controller on again. This will reset the error count to 0.

EZ-Boom system error message 5201: “Main Pressure Below Min”

Cause

A critical EZ-Boom system error has occurred. There are two possible causes of this error message:

- The pressure is lower than -70 kPa.
- A pressure indication of < 0 psi occurred for a period of at least three seconds.

This message appears when the error first occurs and every 10 seconds of continuous error after that until it is corrected.

Note – *This error will only occur if the pressure sensor is enabled in the EZ-Boom system setup.*

Possible failure modes

- There is a faulty pressure sensor or wiring harness.
- The pressure sensor is not calibrated correctly.

Note – *If this is only an occasional problem, use the display to clear the controller error and continue to operate.*

Solution

STEP 1: Clear the error message (EZ-Guide Plus lightbar)

a. Write down the error message.

b. Press OK.

Clear the error message (FieldManager display)

a. Write down the error message.

b. On the display, check the error detail.

c. Tap **OK**.

STEP 2: Check the pressure sensor setup parameters (EZ-Guide Plus lightbar)

a. From the main navigation screen, select . The setup menu appears.

b. Select *EZ-Boom*/*Pressure Cal*. The *Pressure Cal* screen appears.

c. Ensure that the sensor is enabled and the settings are correct.

d. If necessary, re-calibrate the sensor.

Check the pressure sensor setup parameters (FieldManager display)

a. On the display, press the Configuration button. The *Configuration* screen appears.

b. From the *Implement* group, tap the **Calibrate** button. The *Implement Calibration* screen appears.

c. Select Pressure Calibration. The *EZ-Boom Pressure Calibration* screen appears.

d. Check that the pressure sensor is enabled and that the valve settings are correct.

e. If necessary, re-calibrate the sensor.

Step 3: Check the wiring harness and the pressure sensor output

a. Check that the sensor is receiving 12 VDC from the EZ-Boom controller.

b. Check that the sensor is outputting 1 V–5 V.

EZ-Boom system error message 5202: “Main Pressure Above Max”

Cause

A critical EZ-Boom system error has occurred. There are two possible causes of this error message:

- The pressure is lower than -70 kPa.
- The input voltage is greater than approximately 4.95 V for 3 seconds continuously.

This message appears when the error first occurs and every 10 seconds of continuous error after that until it is corrected.

Note – *This fault will only appear if the pressure sensor is enabled in the EZ-Boom system setup.*

Possible failure modes

- There is a faulty pressure sensor or wiring harness.
- The pressure sensor is not calibrated correctly.

Note – *If this is only an occasional problem, use the display to clear the controller error and continue to operate.*

Solution

STEP 1: Clear the error message (EZ-Guide Plus lightbar)

a. Write down the error message.

b. Press OK.

Clear the error message (FieldManager display)

a. Write down the error message.

b. On the display, check the error detail.

c. Tap **OK**.

STEP 2: Check the pressure setup parameters (EZ-Guide Plus lightbar)

a. From the main navigation screen, select . The setup menu appears.

b. Select *EZ-Boom*/*Pressure Cal*. The *Pressure Cal* screen appears.

c. Ensure that the sensor is enabled and the settings are correct.

d. If necessary, re-calibrate the sensor.

Check the pressure sensor setup parameters (FieldManager display)

a. On the display, press the Configuration button. The *Configuration* screen appears.

b. From the *Implement* group, tap the **Calibrate** button. The *Implement Calibration* screen appears.

c. Select Pressure Calibration. The *EZ-Boom Pressure Calibration* screen appears.

d. Check that the pressure sensor is enabled and that the valve settings are correct.

e. If necessary, re-calibrate the sensor.

Step 3: Check the wiring harness and the pressure sensor output

a. Check that the sensor is receiving 12 VDC from the EZ-Boom controller.

b. Check that the sensor is outputting 1 V–5 V.

EZ-Boom system error message 6B00: “Minimum Flow”

Cause

A critical EZ-Boom system error has occurred. This error message appears when the actual flow is less than the *Minimum Flow* setting (scaled for the current swath) ***and*** the target flow is less than the actual flow:

This message appears when the error first occurs and every second of continuous error after that until it is corrected.

Possible failure modes

- There is a faulty flow meter or wiring harness.
- The sprayer is traveling so slowly that the target rate cannot be maintained unless the flow drops below the *Minimum Flow* setting.
- The *Minimum Flow* setting is too high.

Note – *If this is only an occasional problem, use the display to clear the controller error and continue to operate.*

Solution

STEP 1: Clear the error message (EZ-Guide Plus lightbar)

a. Write down the error message.

b. Press OK.

Clear the error message (FieldManager display)

a. Write down the error message.

b. On the display, check the error detail.

c. Tap **OK**.

STEP 2: Check the Minimum Flow setting (EZ-Guide Plus lightbar)

a. From the main navigation screen, select . The setup menu appears.

b. Select *EZ-Boom/Application*. The *Application Setup* screen appears.

c. Ensure that the *Min Flow* setting is appropriate (not too high).

Check the Minimum Flow setting (FieldManager display)

a. On the display, press the Configuration button. The *Configuration* screen appears.

b. Tap the **Calibrate** button in the *Implement* group. The *Implement Calibration* screen appears.

c. Tap the **Flow Calibration** button. The *EZ-Boom Flow Calibration* screen appears.

d. Ensure that the value in the *Min Flow* field is appropriate (not too high).

Step 3: Check the wiring harness and flow meter output

Check that the flow meter is being supplied the correct voltage from the EZ-Boom controller.

Step 4: Check the liquid flow (EZ-Guide Plus lightbar)

Check the output from the flow meter when liquid is flowing through the sprayer. To do this, perform a flow calibration:

a. From the main navigation screen, select . The setup menu appears.

b. Select *EZ-Boom/Flow Calibration*. The *Flow Calibration* screen appears.

c. Press OK until you have selected Calibrate.

d. Press OK to run the flow calibration sequence.

Check the liquid flow (FieldManager display)

Check the output from the flow meter when liquid is flowing through the sprayer. To do this, perform a flow calibration:

a. On the display, press the Configuration button. The *Configuration* screen appears.

b. From the *Implement* group, tap the **Calibrate** button. The *Implement Calibration* screen appears.

c. Select Flow Calibration. The *EZ-Boom Flow Calibration* screen appears.

d. Tap the **Recalibrate** button to run the flow calibration sequence.

Follow the onscreen instructions, or refer to the *AgGPS FieldManager Display User Guide* version 2.00.

CHAPTER

2

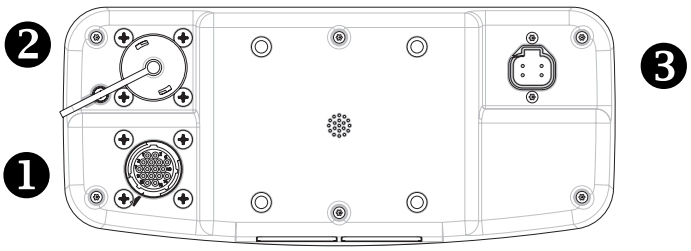
EZ-Boom 2010 System Harness Schematics

In this chapter:

- EZ-Boom 2010 system cable pinout information
- EZ-Guide-to-EZ-Steer harness: P/N 52763
- EZ-Steer-to-EZ-Boom harness: P/N 58377
- Terminator connector: P/N 58378
- Raven 4x0 series “Y” cable: P/N 58560
- CAN terminator: P/N 59783
- AgGPS FieldManager display harness (Rev B): P/N 59872
- FieldManager-to-EZ-Boom-extension-cable: P/N 59873
- Raven 4x00 series “Y” cable: P/N 59942 (see next page)
- EZ-Boom-to-Raven-4x00 adaptor harness: P/N 59943
- Implement switch harness: P/N 60477
- Implement tee harness: P/N 60567
- Implement switch extension harness (10 ft): P/N 60478
- Implement switch extension harness (25 ft): P/N 60479

This chapter describes the EZ-Boom 2010 system harness schematics.

EZ-Boom 2010 system cable pinout information



MAIN CONNECTOR
MATE: AMP P/N 206037-1 ❶

PIN	SIGNAL
1	GND
2	BOOM 2
3	INC/DEC (OPEN VALVE)
4	INC/DEC (CLOSE VALVE)
5	BOOM 3
6	BOOM 1
7	BOOM 4
8	BOOM 5
9	BOOM 6
10	AUX MASTER SW. INPUT
11	SHIELD GROUND
12	5VDC (OUT)
13	FLOW SIGNAL
14	SWITCHED 12V+ (OUT)
15	BOOM 7
16	BATT+

SECONDARY CONNECTOR
MATE: AMP P/N 206044-1 ❷

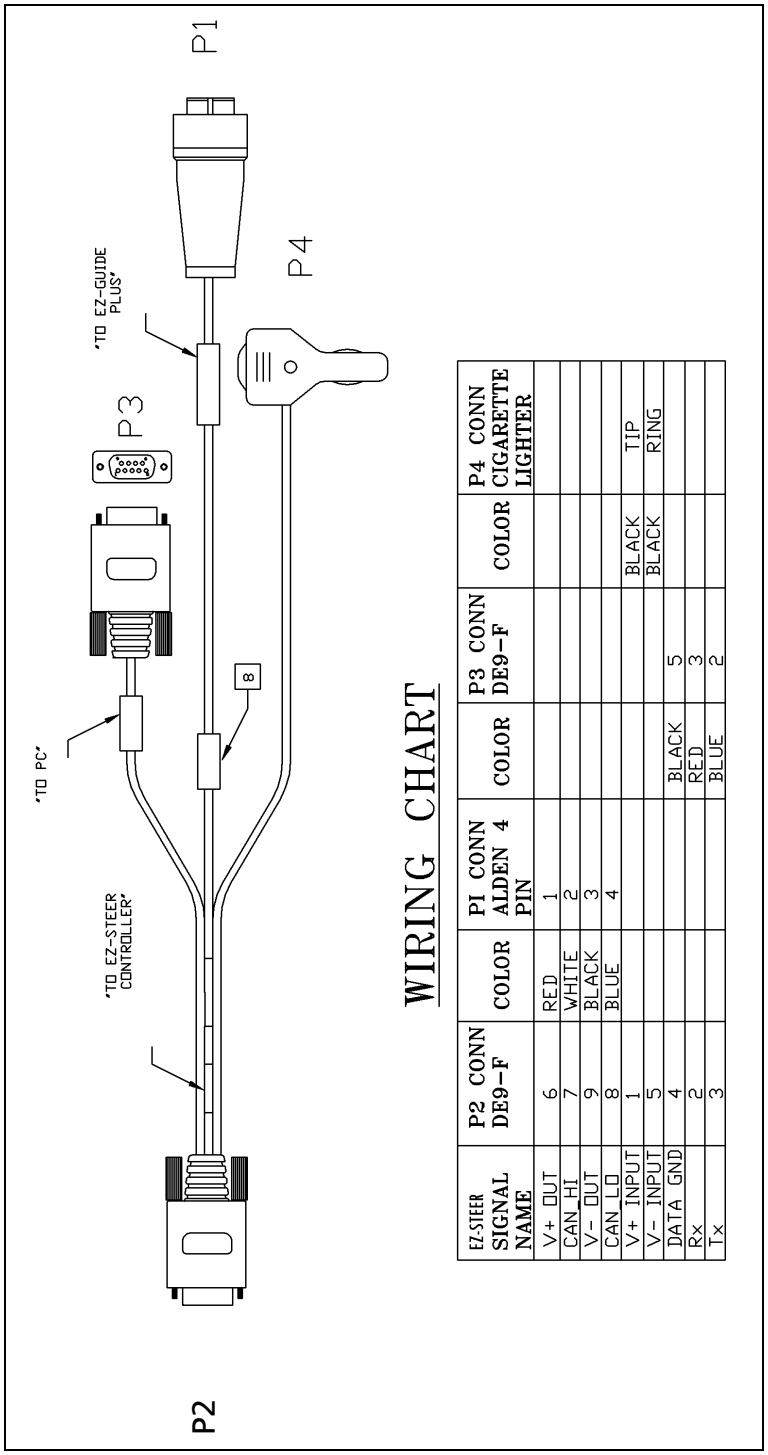
PIN	SIGNAL
1	BOOM 8
2	BOOM 9
3	BOOM 10
4	POWER (PRESSURE SENSOR 2)
5	GROUND (PRESSURE SENSOR 2)
6	PRESSURE SIGNAL
7	
8	POWER (PRESSURE SENSOR 1)
9	GROUND (PRESSURE SENSOR 1)
10	PRESSURE SIGNAL 1
11	CABLE SENSE RETURN
12	IMPLEMENT SWITCH INPUT
13	IMPLEMENT SWITCH 5V+
14	CABLE SENSE SEND

CAN BUS
MATE: DEUTSCH P/N DT06-4S-**** ❸

PIN	SIGNAL
1	12V+ POWER
2	CAN LOW
3	GROUND
4	CAN HIGH

EZ-Guide-to-EZ-Steer harness: P/N 52763

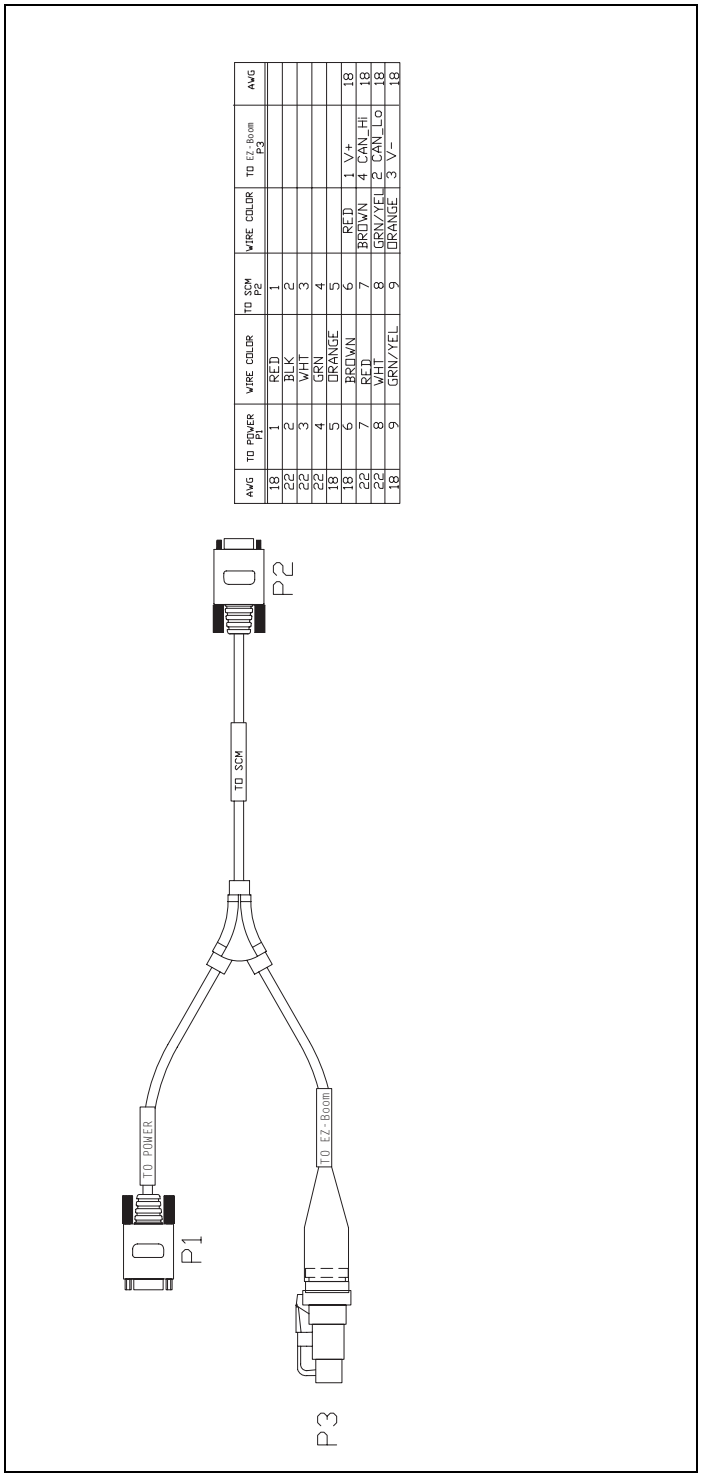
(Which connects the EZ-Guide Plus lightbar guidance system to the EZ-Steer® assisted steering system):



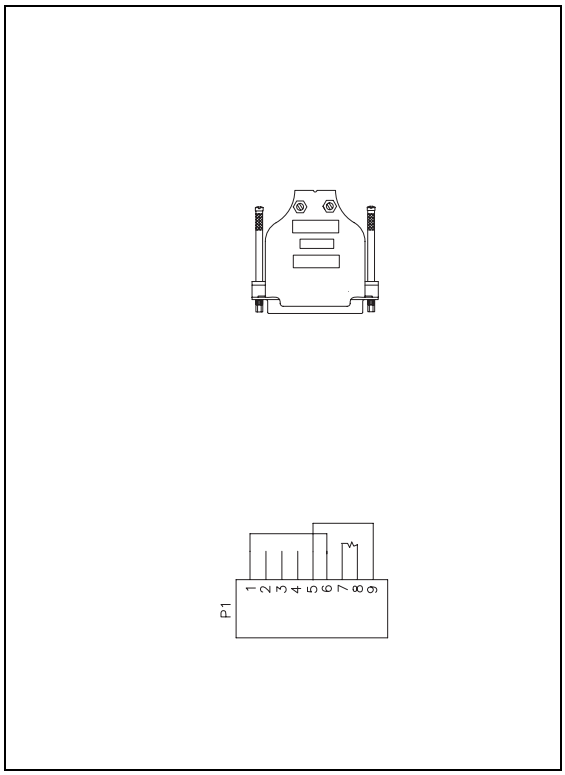
WIRING CHART

EZ-STEER SIGNAL NAME	P2 CONN DE9-F	COLOR	P1 CONN ALDEN 4 PIN	COLOR	P3 CONN DE9-F	COLOR	P4 CONN CIGARETTE LIGHTER
V+ OUT	6	RED	1				
CAN_HI	7	WHITE	2				
V- OUT	9	BLACK	3				
CAN_LO	8	BLUE	4				
V+ INPUT	1					BLACK	TIP
V- INPUT	5					BLACK	RING
DATA GND	4			BLACK	5		
Rx	2			RED	3		
Tx	3			BLUE	2		

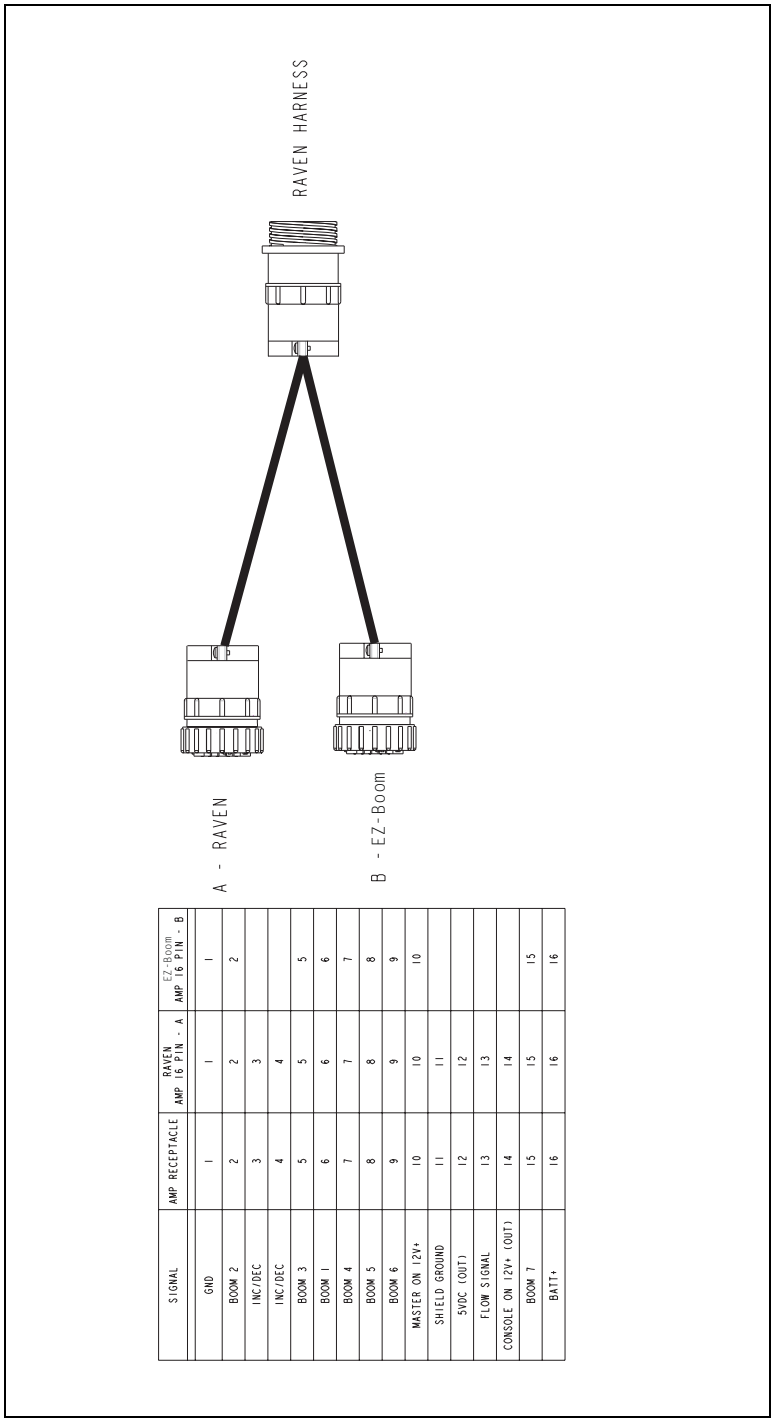
EZ-Steer-to-EZ-Boom harness: P/N 58377



Terminator connector: P/N 58378

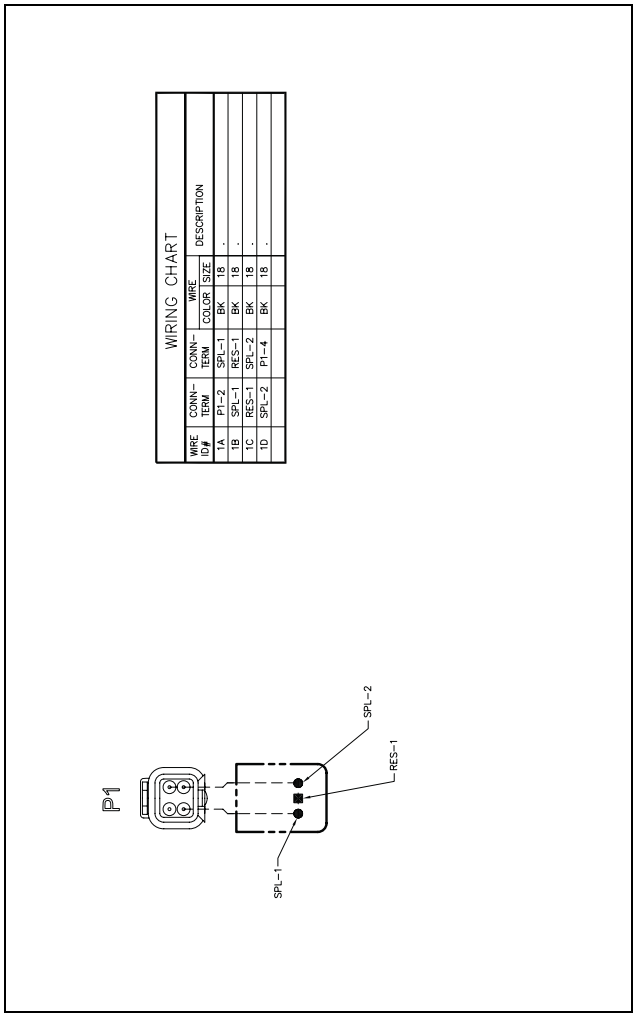


Raven 4x0 series “Y” cable: P/N 58560

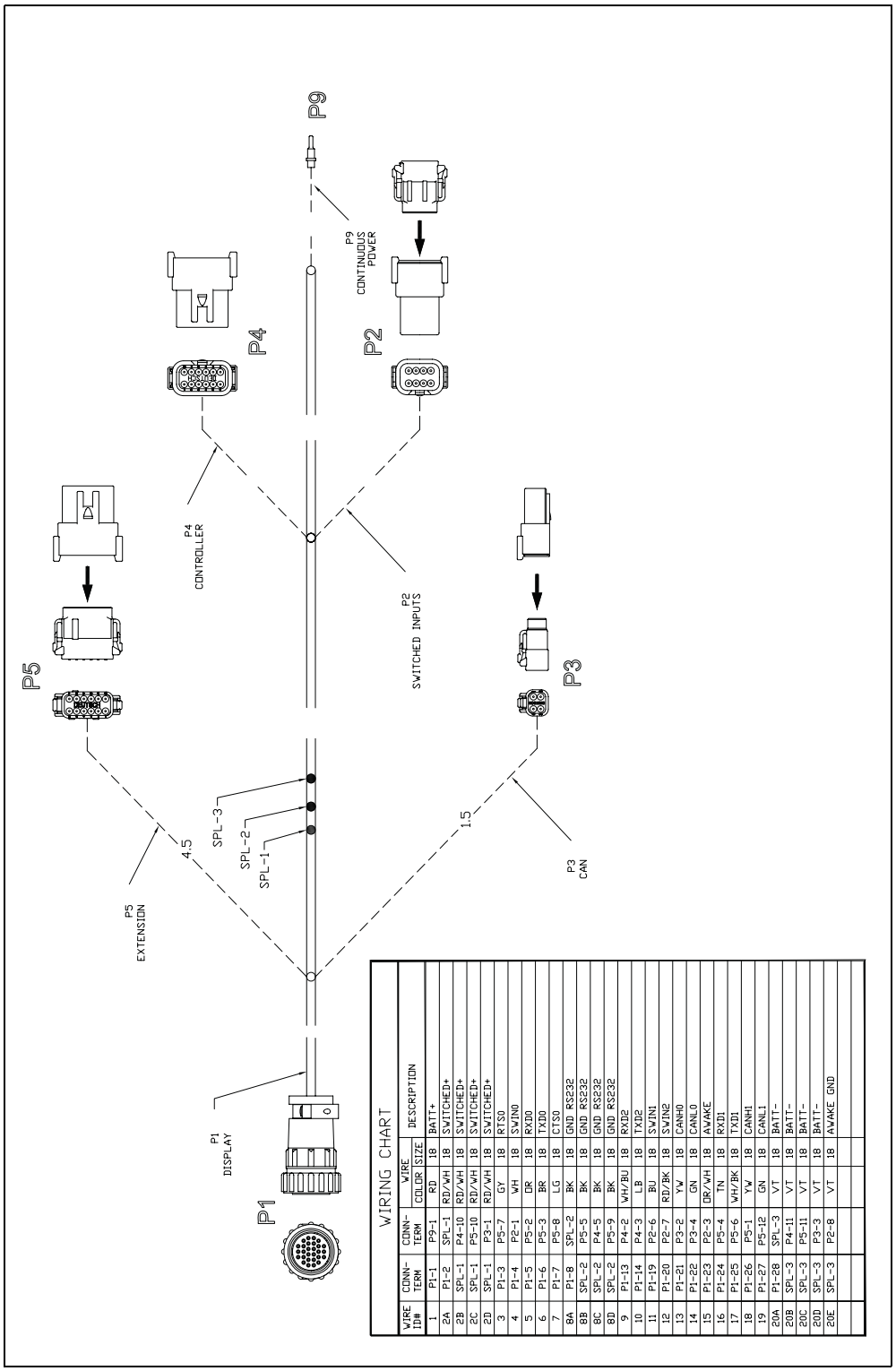


SIGNAL	AMP RECEPTACLE	RAVEN AMP 16 PIN - A	EZ-Boom AMP 16 PIN - B
GND	1	1	1
BOOM 2	2	2	2
INC/DEC	3	3	
INC/DEC	4	4	
BOOM 3	5	5	5
BOOM 1	6	6	6
BOOM 4	7	7	7
BOOM 5	8	8	8
BOOM 6	9	9	9
MASTER ON 12V+	10	10	10
SHIELD GROUND	11	11	
5VDC (OUT)	12	12	
FLOW SIGNAL	13	13	
CONSOLE ON 12V+ (OUT)	14	14	
BOOM 7	15	15	15
BATT+	16	16	16

CAN terminator: P/N 59783



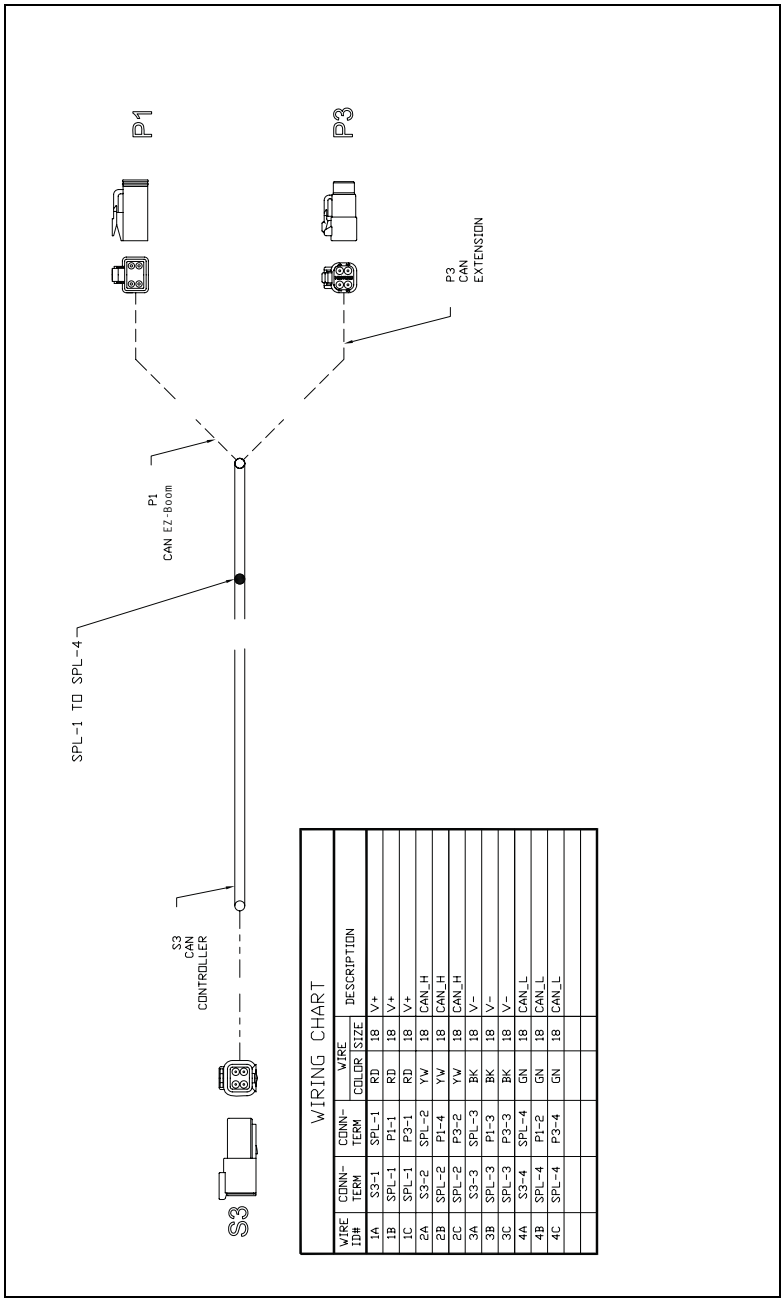
*Ag*GPS FieldManager display harness (Rev B): P/N 59872



WIRING CHART

WIRE ID#	CONN-TERM	CONN-TERM	WIRE COLOR	WIRE SIZE	DESCRIPTION
1	P1-1	P9-1	RD	18	BATT+
2A	P1-2	SPL-1	RD/WH	18	SWITCHED+
2B	SPL-1	P4-10	RD/WH	18	SWITCHED+
2C	SPL-1	P5-10	RD/WH	18	SWITCHED+
2D	SPL-1	P3-1	RD/WH	18	SWITCHED+
3	P1-3	P5-7	GY	18	RTS0
4	P1-4	P2-1	WH	18	SWIN0
5	P1-5	P5-2	OR	18	RXD0
6	P1-6	P5-3	BR	18	TXD0
7	P1-7	P5-8	LG	18	CTS0
8A	P1-8	SPL-2	BK	18	GND RS232
8B	SPL-2	P5-5	BK	18	GND RS232
8C	SPL-2	P4-5	BK	18	GND RS232
8D	SPL-2	P5-9	BK	18	GND RS232
9	P1-13	P4-2	WH/BU	18	RXD2
10	P1-14	P4-3	LB	18	TXD2
11	P1-19	P2-6	BU	18	SWIN1
12	P1-20	P2-7	RD/BK	18	SWIN2
13	P1-21	P3-2	YW	18	CANH0
14	P1-22	P3-4	GN	18	CANL0
15	P1-23	P2-3	DR/WH	18	AWAKE
16	P1-24	P5-4	TN	18	RXD1
17	P1-25	P5-6	WH/BK	18	TXD1
18	P1-26	P5-1	YW	18	CANH1
19	P1-27	P5-12	GN	18	CANL1
20A	P1-28	SPL-3	VT	18	BATT-
20B	SPL-3	P4-11	VT	18	BATT-
20C	SPL-3	P5-11	VT	18	BATT-
20D	SPL-3	P3-3	VT	18	BATT-
20E	SPL-3	P2-8	VT	18	AWAKE GND

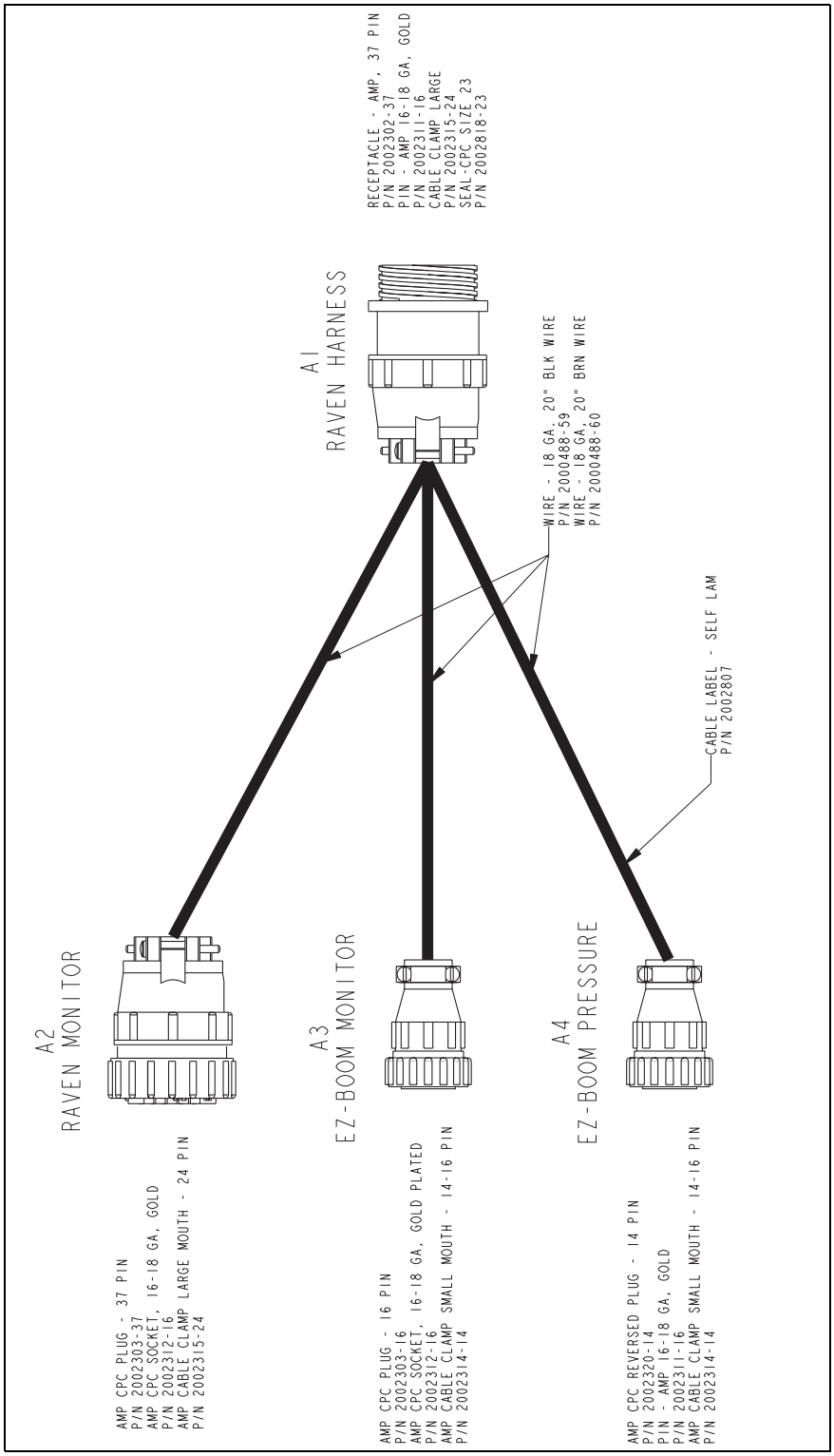
FieldManager-to-EZ-Boom-extension-cable: P/N 59873



WIRING CHART

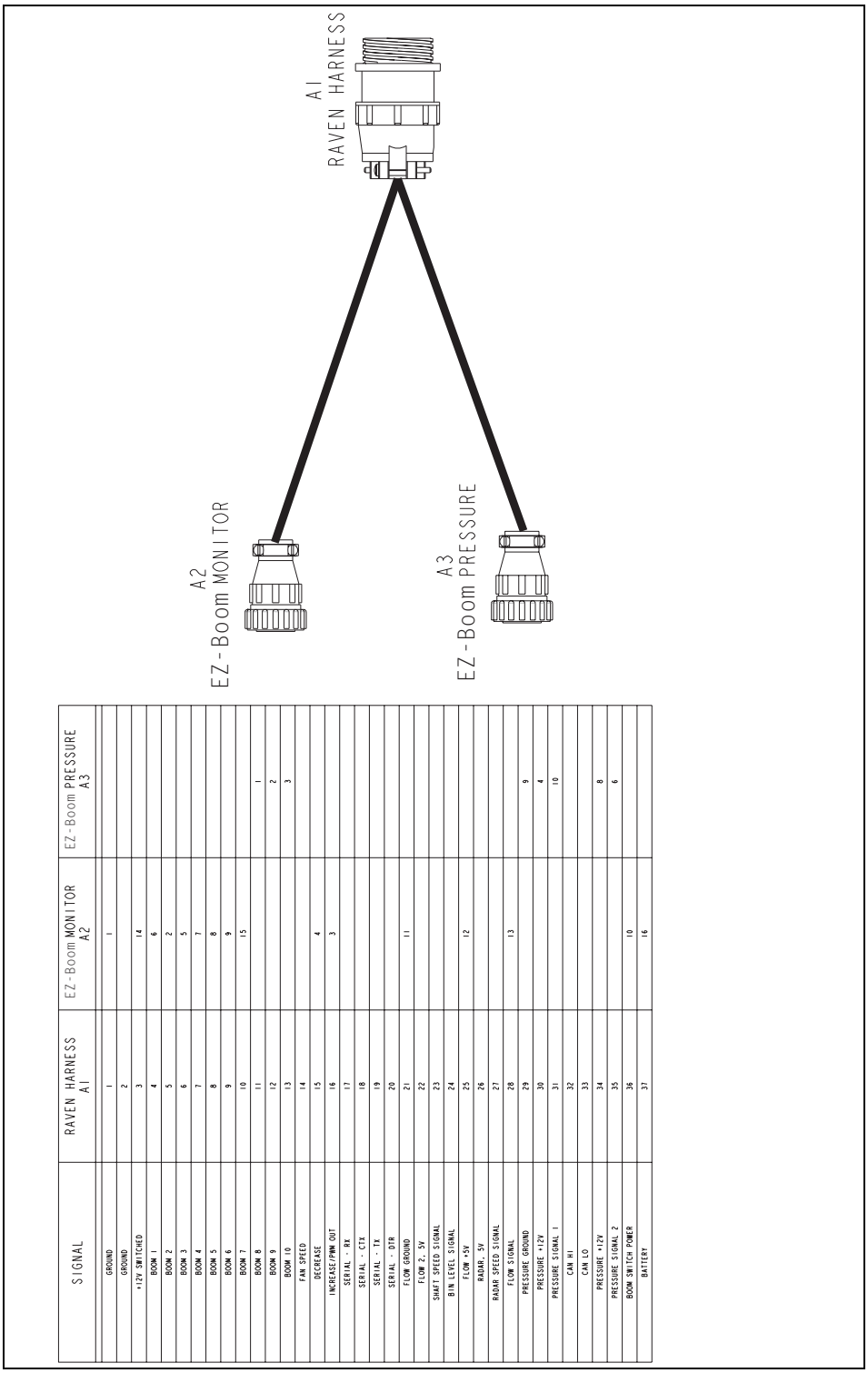
WIRE ID#	CONN-TERM	CONN-TERM	WIRE COLOR	WIRE SIZE	DESCRIPTION
1A	S3-1	SPL-1	RD	18	V+
1B	SPL-1	P1-1	RD	18	V+
1C	SPL-1	P3-1	RD	18	V+
2A	S3-2	SPL-2	YW	18	CAN_H
2B	SPL-2	P1-4	YW	18	CAN_H
2C	SPL-2	P3-2	YW	18	CAN_H
3A	S3-3	SPL-3	BK	18	V-
3B	SPL-3	P1-3	BK	18	V-
3C	SPL-3	P3-3	BK	18	V-
4A	S3-4	SPL-4	GN	18	CAN_L
4B	SPL-4	P1-2	GN	18	CAN_L
4C	SPL-4	P3-4	GN	18	CAN_L

Raven 4x00 series “Y” cable: P/N 59942 (see next page)



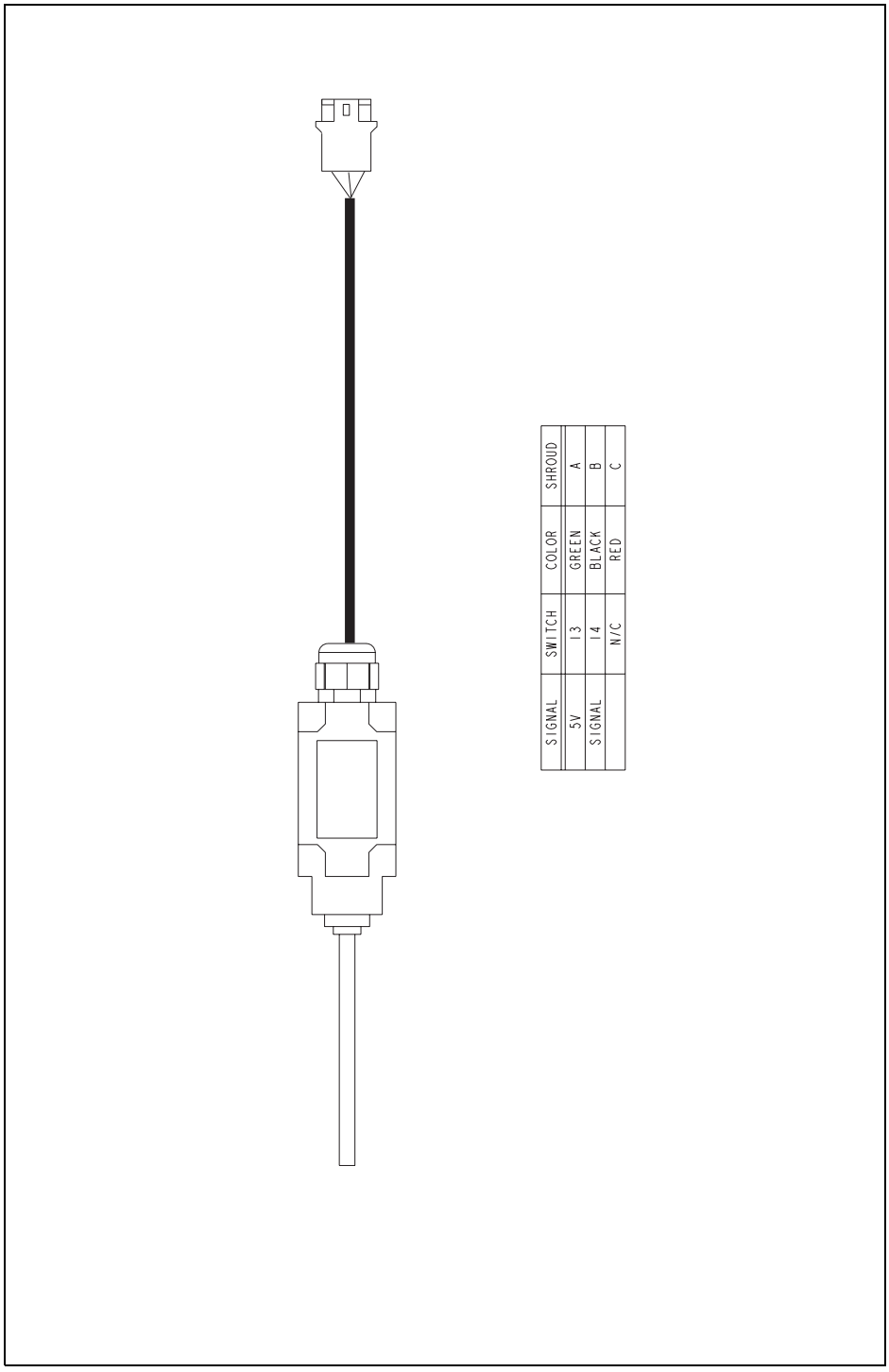
SIGNAL	RAVEN HARNESS A1	RAVEN MONITOR A2	EZ-BOOM MONITOR A3	EZ-BOOM PRESSURE A4
GROUND	1	1	1	
GROUND	2	2		
+12V SWITCHED	3	3		
BOOM 1	4	4	6	
BOOM 2	5	5	2	
BOOM 3	6	6	5	
BOOM 4	7	7	7	
BOOM 5	8	8	8	
BOOM 6	9	9	9	
BOOM 7	10	10	15	
BOOM 8	11	11		1
BOOM 9	12	12		2
BOOM 10	13	13		3
FAN SPEED	14	14		
DECREASE	15	15		
INCREASE/PWM OUT	16	16		
SERIAL - RX	17	17		
SERIAL - CTX	18	18		
SERIAL - TX	19	19		
SERIAL - DTR	20	20		
FLOW GROUND	21	21		
FLOW 2, 5V	22	22		
SHAFT SPEED SIGNAL	23	23		
BIN LEVEL SIGNAL	24	24		
FLOW +5V	25	25		
RADAR, 5V	26	26		
RADAR SPEED SIGNAL	27	27		
FLOW SIGNAL	28	28		
PRESSURE GROUND	29	29		
PRESSURE +12V	30	30		
PRESSURE SIGNAL 1	31	31		
CAN HI	32	32		
CAN LO	33	33		
PRESSURE +12V	34	34		
PRESSURE SIGNAL 2	35	35		
BOOM SWITCH POWER	36	36		
BATTERY	37	37	16	

EZ-Boom-to-Raven-4x00 adaptor harness: P/N 59943

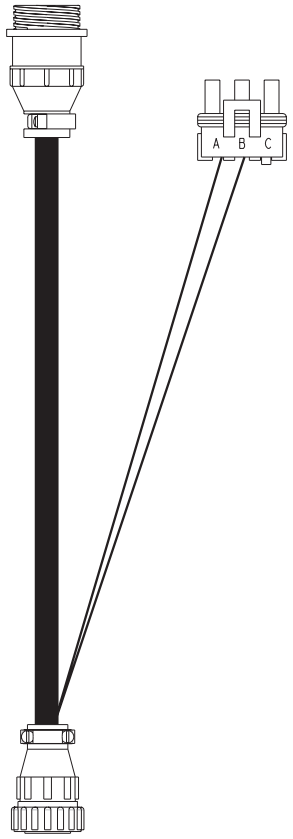


SIGNAL	RAVEN HARNESS A1	EZ-Boom MONITOR A2	EZ-Boom PRESSURE A3
GROUND	1	1	
GROUND	2		
+12V SWITCHED	3	14	
BOOM 1	4	6	
BOOM 2	5	2	
BOOM 3	6	5	
BOOM 4	7	7	
BOOM 5	8	8	
BOOM 6	9	9	
BOOM 7	10	15	
BOOM 8	11		1
BOOM 9	12		2
BOOM 10	13		3
FAN SPEED	14		
DECREASE	15	4	
INCREASE/PWM OUT	16	3	
SERIAL - RX	17		
SERIAL - CTX	18		
SERIAL - TX	19		
SERIAL - DTR	20		
FLOW GROUND	21	11	
FLOW 2- 5V	22		
SHAFT SPEED SIGNAL	23		
BIN LEVEL SIGNAL	24		
FLOW +5V	25	12	
RADAR- 5V	26		
RADAR SPEED SIGNAL	27		
FLOW SIGNAL	28	13	
PRESSURE GROUND	29		9
PRESSURE +12V	30		4
PRESSURE SIGNAL 1	31		10
CAN HI	32		
CAN LO	33		
PRESSURE +12V	34		8
PRESSURE SIGNAL 2	35		6
BOOM SWITCH POWER	36	10	
BATTERY	37	16	

Implement switch harness: P/N 60477

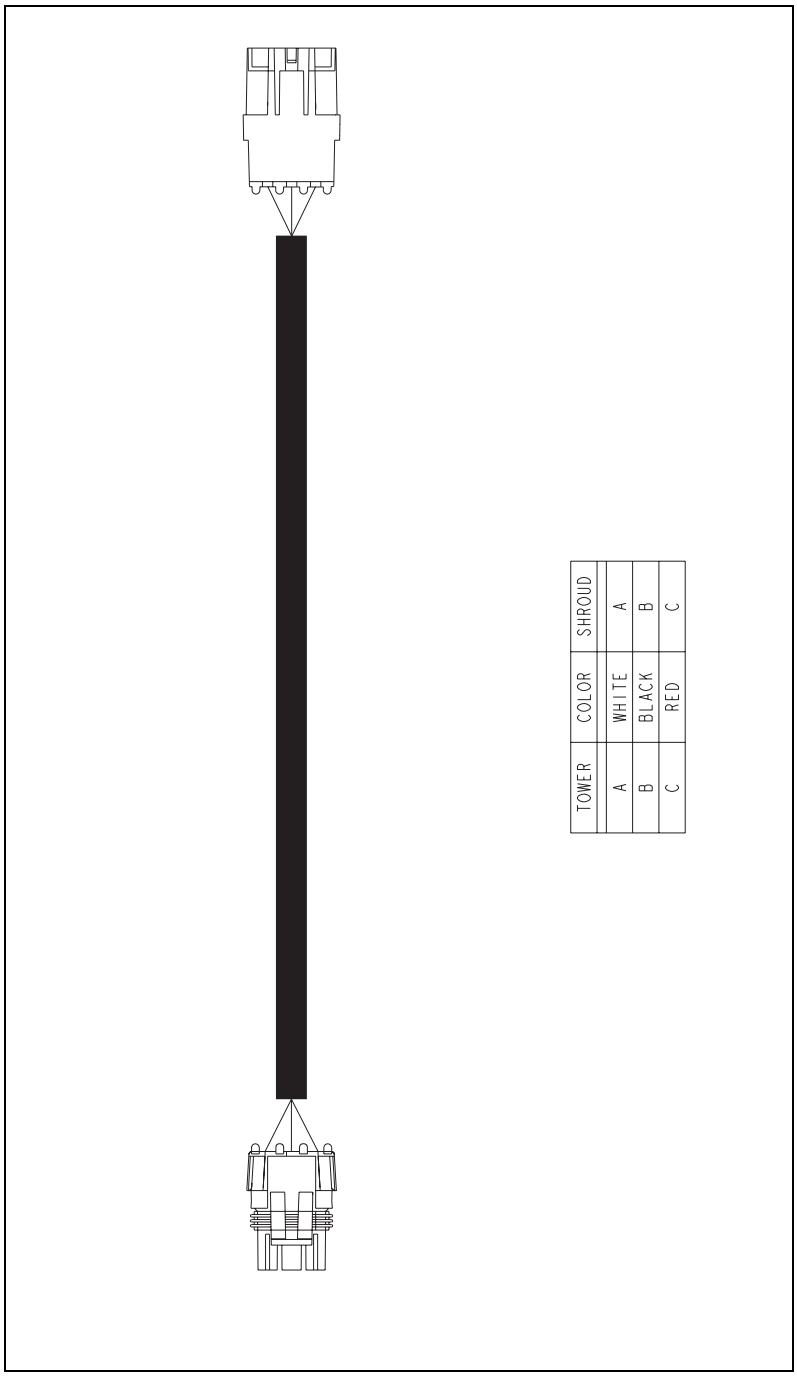


Implement tee harness: P/N 60567

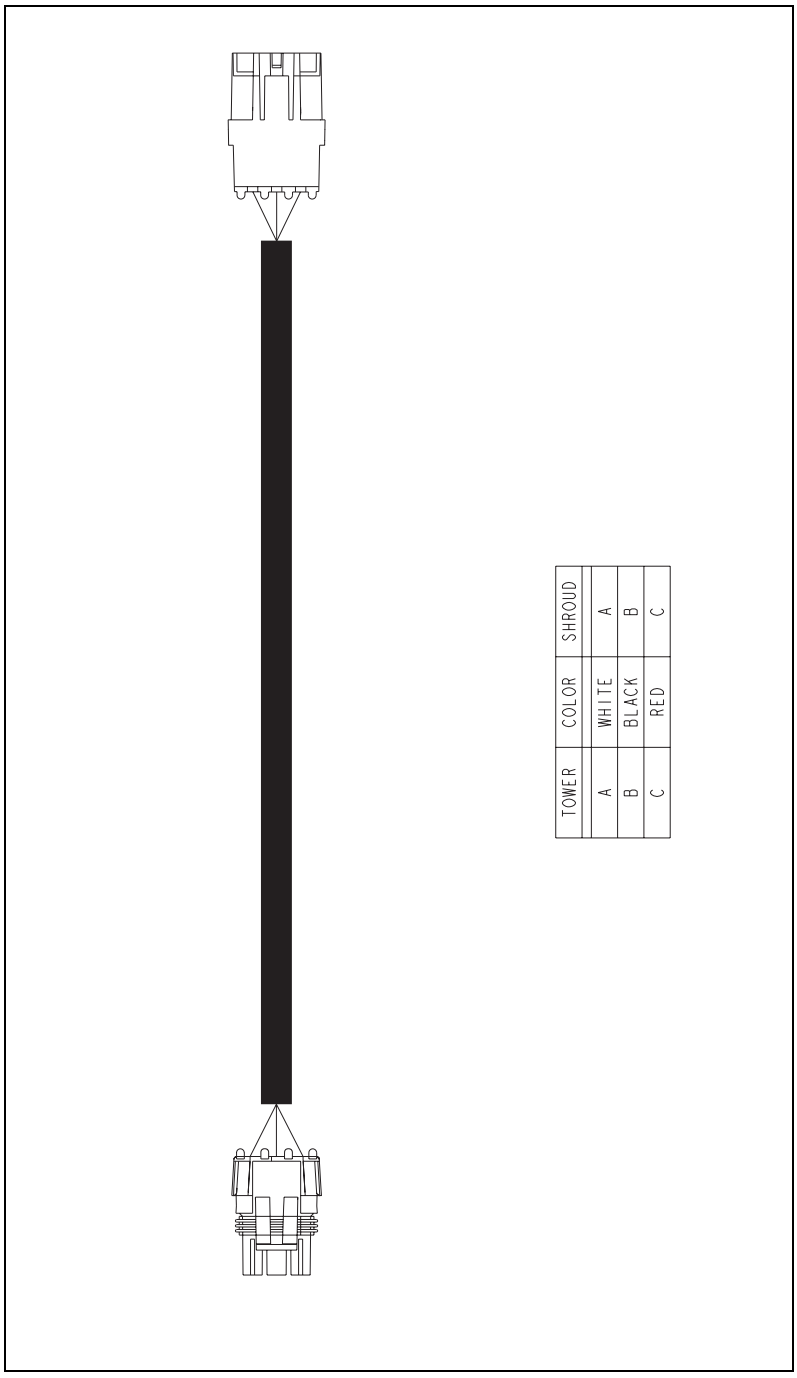


SIGNAL	PLUG	COLOR	WP TOWER	RECEPTACLE
BOOM 8	1			1
BOOM 9	2			2
BOOM 10	3			3
POWER (PRESSURE SENSOR 2)	4			4
GROUND (PRESSURE SENSOR 2)	5			5
PRESSURE SIGNAL 2	6			6
	7			
POWER (PRESSURE SENSOR 1)	8			8
GROUND (PRESSURE SENSOR 1)	9			9
PRESSURE SENSOR 1	10			10
CABLE SENSE RETURN	11	JUMPER TO 14		
IMPLEMENT SWITCH INPUT	12		B	
IMPLEMENT SWITCH 5V+	13		A	
CABLE SENSE SEND	14	JUMPER TO 11		

Implement switch extension harness (10 ft): P/N 60478



Implement switch extension harness (25 ft): P/N 60479



CHAPTER

3

EZ-Boom 2010 System Technical Specifications

In this chapter:

- Technical specifications

This chapter lists the technical specifications of the EZ-Boom 2010 system.

Technical specifications

Item	Description
Dimensions	266 mm W x 115 mm H x 87 mm D (10.5" W x 4.5" H x 3.4" D)
Weight	0.855 kg (1.89 lb)
Enclosure	Polycarbonate/abs blend
Resistance	Chemical and UV resistant
Environmental	Sealed to IP54
Operating temperature	-40°C to 70°C
Storage temperature	-40°C to 70°C
Processor	Freescale 16-bit 50 MHz 356 kb flash 12 kb RAM 4 xB EEPROM 2 CAN 2.0 A/B Compatible ports
Electrical	Full function range: 8 V–18 V Absolute range: 0 V–28 V Reverse voltage protection Meets EP455 load dump Current draw: Processor only (no boom/servo loads): 200 mA max Total current limit: 22 A
Inputs	4 x digital inputs (flowmeter, remote switch, implement switch, cable sense) Switching threshold: 1.25 V Tolerate: -18 V to +18 V ESD protected 2 x analog pressure inputs (main and auxiliary) Analog range: 0 V to 5 V Tolerate: -18 V to +18 V ESD protected
Outputs	Boom drives 10 high-side drivers 4 A steady state each Protected against short to ground, overtemperature, overcurrent Servo drive H-bridge servo drive IC 4 A steady state each Protected against short to ground and +12, overtemperature, overcurrent
Supply outputs	5 V output Limited at approx 0.7 A Protected against short to ground, overtemperature, ESD 12 V output Limited at approx 0.7 A Protected against short to ground, overtemperature, ESD